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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,950	11/24/2003	Tatsuji Kobayashi	116-032125	5273

7590 06/15/2004

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EXAMINER

WELLS, NIKITA

ART UNIT PAPER NUMBER

2881

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/720,950	Applicant(s) KOBAYASHI ET AL.	
	Examiner Nikita Wells	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>060304</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 is dependent upon claims 8 or 9 and recites the limitation "said temperature sensor" on line 2. There is insufficient antecedent basis for this limitation in the claim since neither claim 8 nor 9 recites a temperature sensor. Instead, claim 12 should depend upon claim 10.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1, 3, and 4, are rejected under 35 U.S.C. 102(e) as being anticipated by Andrien, Jr. et al. (6,600,155 B1)

With respect to the above claims, Andrien, Jr. et al. disclose (Abstract; Figs. 1 and 2A; Col. 1, lines 51-63; Col. 9, lines 18-28; Col. 13, lines 13-45) an orthogonal acceleration time-of-flight mass spectrometer (1) comprising: an external ion source (2) for producing ions; a space (10) in which said ions are directed; an ion reservoir (8, 10) consisting of a repeller plate (11) and grids (13, 14) that are placed on the opposite sides of said space (10) to accelerate the ions in a pulsed manner out of the space (10), a time-of-flight mass spectrometric portion for mass

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separating the ions taken out of the ion reservoir (10) via its internal grids (13, 14); an ion detector (22, 23) for detecting the mass-separated ions; and heating means for heating the repeller plate (11 or 88) (see Col. 23, lines 44-60; Fig. 5A) .

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrien, Jr. et al. (6,600,155 B1).

With respect to claims 5-9, although Andrien, Jr. et al. disclose the orthogonal acceleration time-of-flight mass spectrometer with heating means for heating the repeller plate (11 or 88) (see Col. 23, lines 44-60; Fig. 5A) as outlined in item 2 above, Andrien, Jr. et al. fail to specifically disclose that the said heating means of the repeller plate is heated by a formed stretched metal wire in a zigzag fashion adjacent a metal plate and wherein said metal wire is mounted over said metal plate via insulators and is not in direct contact with said metal plate, and wherein said metal wire is made of a metal showing low vapor pressures at high temperatures such as tantalum, platinum, or tungsten, and that the heater may be heated within a range of 100-1000°C.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recognize that the above methods of indirectly heating a repeller plate in vacuum within a temperature range of 100-1000°C is notoriously well known in prior art.

With respect to claims 10-12, although Andrien, Jr. et al. disclose the orthogonal acceleration time-of-flight mass spectrometer with heating means for heating the repeller plate, Andrien, Jr. et al. fail to specifically disclose that the said heating means incorporates a temperature sensor and that this temperature sensor is a thermocouple wherein the signal from said temperature sensor is fed back to a power supply that energizes said heating means. However, the use of temperature sensors in the form of thermocouples with signal feedback loops reverted back to power supplies are notoriously well known in prior art.

With respect to claim 2, Andrien, Jr. et al. fail to specifically disclose that the said heating means of the repeller plate also heats the focusing lenses, grids, and a slit mounted between the external ion source and the ion reservoir. The heating of these elements, however, is inherent in the design of the indirect heating of the repeller plate and is a matter of how much heat is directed or radiated to these elements and the proximity of these elements to the heating means.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Whitehouse et al. (6,683,301 B2) disclose an orthogonal acceleration time-of-flight mass spectrometer with a pulsing region incorporating an ion repeller surface with an additional static electric field that accelerates ions toward the surface. Y. Kammei (6,674,068 B1) disclose reflectron time-of-flight mass spectrometer incorporating a pulsing region and an ion repeller.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikita Wells whose telephone number is (571) 272-2484. The examiner can normally be reached on 8:30 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-

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2477. The central fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Nikita Wells". The signature is fluid and cursive, with the first name "Nikita" and the last name "Wells" clearly distinguishable.

Nikita Wells, Primary Examiner,

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June 3, 2004